

TECHNICAL MANUAL

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HEADQUARTERS
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DATA SHEETS FOR
GUNS, HOWITZERS, AND MORTARS
INTEROPERABLE AMMUNITION

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to Commander, US Army TACOM, Armament Research, Development and Engineering Center, ATTN: AMSTA-AR-LSB, Picatinny Arsenal, New Jersey 07801-5001. A reply will be furnished directly to you.

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CHAPTER 1

INTRODUCTION

1-1. GENERAL

As a result of recent agreements between the United States (US) and a number of its NATO allies, it is intended to establish the interoperability of many weapon systems and ammunition of the various countries. The goal is to enable the safe and effective firing of major types of ammunition of the same size from the same compatible size and type weapon of the NATO armies. Interoperability criteria are now required for many weapons and ammunition items in current development. Determinations are now being made to establish which ammunition is compatible with which weapons. As these are completed, ammunition items will be authorized for use in US weapons by changes to the applicable ammunition and weapons manuals. NATO nations will provide similar authorization in their manuals. Only authorized NATO ammunition will be used. Those items covered in this technical manual have been authorized. If a munitions item has not been authorized, it is because (1) it has not yet been determined to be safe to fire from a US weapon system or (2) it has been determined that the munitions item cannot be safely fired from the US weapon system.

NOTE

The interchange of munitions with NATO nations is for combined training exercise, i.e., US Army troops and NATO nation troops. At the conclusion of any training exercise, munitions drawn from NATO consumed (fired) are to be returned to troops of the NATO nation from whom they were obtained.

1-2. PURPOSE

This manual is a reference handbook published as an aid in planning, training, familiarization and identification of interoperable artillery ammunition.

1-3. SCOPE

a. For each item of material, there are illustrations and descriptions, together with characteristics and related data. Included in the related data are weights, dimensions, performance data, packing, shipping and storage data, type classification, and logistics control codes (LCC).

b. Information concerning supply, operation, and maintenance of the items will be found in the publications referenced for these items. A complete listing of these publications is maintained in DA Pam 310-1 index.

c. Numerical values, such as weights, dimensions, candlepower, etc., are nominal values, except when specified as maximum or minimum. Actual items may vary slightly from these values. Allowable limits can be obtained from the drawings indicated in the data sheets.

1-4. METRIC CONVERSION CHART

METRIC CONVERSION CHART

Approximate Conversions to Metric Measures

| Symbol | When You Know | Multiply By | To Find | Symbol |
|-----------------|-------------------------------------|-------------|--------------------|-----------------|
| LENGTH | | | | |
| in | inches | 2.5 | centimeters | cm |
| ft | feet | 30 | centimeters | cm |
| yd | yards | 0.9 | meters | m |
| mi | miles | 1.6 | kilometers | km |
| mm | millimeters | 0.04 | inches | in. |
| cm | centimeters | 0.4 | inches | in. |
| m | inches | 3.3 | feet | ft |
| m | meters | 1.1 | yards | yd |
| km | kilometers | 0.6 | miles | mi |
| AREA | | | | |
| in ² | square inches | 6.5 | square centimeters | cm ² |
| ft ² | square feet | 0.09 | square meters | m ² |
| yd ² | square yards | 0.8 | square meters | m ² |
| mi ² | square miles | 2.6 | square kilometers | km ² |
| | acres | 0.4 | hectares | ha |
| cm ² | square centimeters | 0.16 | square inches | in ² |
| m ² | square meters | 1.2 | square yards | yd ² |
| km ² | square kilometers | 0.4 | square miles | mi ² |
| ha | hectares (10,000m ²) | 2.5 | acres | |

METRIC CONVERSION CHART

Approximate Conversions to Metric Measures (Continued)

| Symbol | When You Know | Multiply By | To Find | Symbol |
|-----------------|--------------------------|-------------|--------------|-----------------|
| WEIGHT | | | | |
| oz | ounces | 28 | grams | g |
| lb | pounds | 0.45 | kilograms | kg |
| | short tons (2000 lbs) | 0.9 | tonnes | t |
| g | grams | 0.035 | ounces | oz |
| kg | kilograms | 2.2 | pounds | lb |
| t | tonnes (1000 kg) | 1.1 | short tons | |
| VOLUME | | | | |
| tsp | teaspoons | 5 | milliliters | ml |
| Tbsp | tablespoons | 15 | milliliters | ml |
| fl oz | fluid ounces | 30 | milliliters | ml |
| c | cups | 0.24 | liters | l |
| pt | pints | 0.47 | liters | l |
| qt | quarts | 0.95 | liters | l |
| gal | gallons | 3.8 | liters | l |
| ft ³ | cubic feet | 0.03 | cubic meters | m ³ |
| yd ³ | cubic yards | 0.76 | cubic meters | m ³ |
| ml | milliliters | 0.03 | fluid ounces | fl oz |
| l | liters | 2.1 | pints | pt |
| l | liters | 1.06 | quarts | qt |
| l | liters | 0.26 | gallons | gal |
| m ³ | cubic meters | 35 | cubic feet | ft ³ |
| m ³ | cubic meters | 1.3 | cubic yards | yd ³ |

METRIC CONVERSION CHART

Approximate Conversions to Metric Measures (Continued)

| Symbol | When You Know | Subtract | Multiply By | To Find | Symbol |
|-------------|---------------|----------|-------------|------------|--------|
| TEMPERATURE | | | | | |
| °F | Fahrenheit | 32 | .55 | Celsius | C |
| °C | Celsius | 1.8 | 32 | Fahrenheit | °F |

1-5. KEY TO ABBREVIATIONS AND SYMBOLS

| | |
|-----------------|---|
| AP..... | Armor piercing |
| APC | Armor piercing capped |
| APDS..... | Armor piercing, discarding sabot |
| APERS | Antipersonnel |
| AT | Antitank |
| BD | Base detonating |
| BE..... | Base ejection |
| CS..... | A tactical riot control agent |
| DS..... | Discarding sabot |
| GB | Nonpersistent toxic (casualty) nerve gas |
| H..... | Mustard gas |
| HD | Distilled mustard gas |
| HE | High explosive |
| HT | Mixture of HD&T |
| HEAT | High explosive antitank |
| HEAT-T-MP | High explosive antitank with tracer, multipurpose |
| HEDP | High explosive dual purpose |
| HEI | High explosive incendiary |
| HEP | High explosive plastic |
| HERA | High explosive rocket assisted |
| HVAP | Hypervelocity, armor piercing |
| HVTP | Hypervelocity, target practice |
| ILLUM | Illuminating |
| MOD | Modified |
| MK | Mark |
| MP | Multipurpose |
| MT..... | Mechanical time |
| MTSQ..... | Mechanical time and superquick |
| MV | Muzzle velocity |

| | |
|------------|---------------------------------------|
| PD..... | Point detonating |
| PIBD..... | Point initiating, base detonating |
| PROX | Proximity |
| PWP..... | Plasticized white phosphorous |
| RAP | Rocket assisted projectile |
| SD..... | Self destroying |
| T | Time fuze or for training only |
| -T | With tracer |
| TP | Target practice |
| TSQ | Time superquick |
| VX..... | Persistent toxic (casualty) nerve gas |
| WP..... | White phosphorous |

1-6. QUANTITY-DISTANCE CLASSES AND STORAGE COMPATIBILITY GROUPS

Quantity-Distance (QD) classes and Storage Compatibility Groups (SCG) listed in this manual are changed. For conversion to new system see table 1-1.

Table 1-1. Quantity-Distance Classes and Storage Compatibility Group

| Quantity-distance hazard class ¹ | | Storage compatibility group ^{1,3} |
|---|------------------|--|
| Old | New ² | Typical - New |
| 8 | 6.1 | |
| 7 | 1.1 | D |
| 6 | 1.2(18) | E |
| 5 | 1.2(12) | |
| 4 | 1.2(08) | F |
| 3 | 1.2(04) | G |
| 2 | 1.3 | C |
| 1 | 1.4 | S |

NOTES:

¹New QD and SCG's are compatible with classes used by NATO nations.

²Numbers in parentheses are minimum distances x 100 feet to protect against specific fragment hazards and vary with items and types of ammunition. (Refer to TM 9-1300-206.)

³There is no simple conversion from old SCG's to new system. The SCG groups listed in this column are typical for the majority of items in the corresponding listed QD class but do not apply to every individual item in the class. For SCG of individual items refer to TM 9-1300-206.